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AUTHOR Harman, Deborah L.
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ABSTRACT

This study was undertaken in order to investigate the hypothesis that students who participated in extended-day kindergarten sessions would show more significant gains in achievement on the California Achievement Test (CAT) than those students who participated in half-day sessions. Sixty-six students attending extended-day kindergarten sessions (experimental group) and 55 students attending half-day kindergarten sessions (control group) participated in the study. Subjects, after experiencing one year in either program, were administered the CAT and their mean scores were compared in order to test the hypothesis. Analysis of the mean scores indicated that the experimental group overscored the control group in both reading and math. These results, although not statistically significant, provided support for the study's hypothesis. A review of related research, comprising approximately two-thirds of the document, is provided following a brief discussion of the study's implications. A list of each subject's raw scores in both reading and math are appended. (Author/MP)

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EXTENDED-DAY KINDERGARTEN VS. HALF-DAY KINDERGARTEN ACHIEVEMENT DIFFERENCES

by

Deborah L. Harman

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for the Masters of Arts degree in Education at
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ABSTRACT

The purpose of this study was to show that students who participated in Extended-Day Kindergarten sessions would show more significant gains in achievement on the California Achievement Test than those students who participated in half-day sessions.

The subjects included 66 Experimental group participants and 55 Control group participants.

The results indicated a difference in mean gains in favor of the Experimental group, but the gains were not significant.

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INTRODUCTION

Frederick Froebel who is considered the "father of kindergarten" laid the foundation for organized education of young children. His program emphasized play materials and social nuturing. Many children were being given social experiences, but actual cognitive development was not emphasized.

In the 1960's many questions arose concerning a redefining of education programs for young children. Noted authorities such as Bloom, Bruner and Hunt felt that there was a need to stimulate the minds of young children.

With nationwide concern, federal monies were allocated for Headstart programs. These programs dealt with innovative programs for preschool children. Even with the new knowledge, concerns for developing affective as well as cognitive areas were still limited for school age children.

Educators, parents and supportive staff began to question the time spent in a regular kindergarten class. Questions concerning the needs of each individual child became of greater importance. Were kindergarten sessions really

meeting instructional needs of their participants? Questions relating to quality and quantity of time in regular kindergarten classes were becoming more prevalent among educators.

Not only were educators questioning services to kindergarten classes, but changing economic situations were making regular kindergarten sessions somewhat obsolete for working parents.

The economic patterns were causing more and more family members to join in the labor force. This new wave has created a need for services which provide care for a longer period of time and also enhances the young child's cognitive development.

With the above factors in mind, the Paterson School District set out to find solutions, which to some degree would cover all phases of the problem.

Within the district several schools were chosen to initiate Extended-Day kindergarten sessions.

After one year of the program, there are questions concerning the academic differences of those students participating in the Experimental group. Are the students who attend the Extended sessions making greater academic gains on the California Achievement Test than those children who had only a half-day session?

HYPOTHESIS

Because of more time spent in the Extended kindergarten

session, which allows for more individual attention, it is hypothesized that the students who participate will receive higher scores on the California Achievement Test, than students who attend regular kindergarten sessions.

DEFINITIONS

EXTENDED-DAY (Experimental group) -- students who attend kindergarten for a period of more than two and one-half hours.

REGULAR-KINDERGARTEN (Control group) -- students attending kindergarten for a period of two and one-half hours or less.

ASSUMPTIONS

It is assumed that the achievement levels of the students within the Experimental group would be higher than the Control group, even though there is a high mobility rate among the students with the sample.

LIMITATIONS

Factors which inhibit students from performing on standarized tests may be present within the sample groups.

The Extended-Day concept is not practiced throughout the entire Paterson School District, therefore, the population will be small, and the amount of time the program has been in effect may be a limitating factor.

PROCEDURES AND SAMPLE

A random selection of students attending three schools within the Paterson School District were selected to participate.

The schools from which the students were selected were School Number 6, School Number 28 and School Number 13.

These schools are similar in ethnic composition, mobility rate and economic status.

Within each school, students were selected from one Regular-Kindergarten session and one Extended- Day Kindergarten session.

The California Achievement Test was administered to the samples in the Spring of 1981.

A comparison was made of the means of test scores of each sample to test the hypothesis that the achievement level of students attending sessions in the Extended-Day Kindergarten and Half-Day Kindergarten do not differ.

RESULTS

Reading and Math scores from the California Achievement Test of May 1981 were obtained from both Experimantal and Control groups.

In Table I the scores were tabulated and computed to obtain the mean scores of both the experimental and the control groups in both subject areas.

TABLE I

Means, Standard Deviation, t test for the achievement of Experimental and Control Samples

	Experimental		Control		
	Mean	S. D.	Mean	S. D.	t test
Reading	48.0	29.45	40.9	27.52	0.12
Math	48.2	23.04	37.3	27.07	0.22

Analysis of the mean scores indicated that the Experimental group showed mean gains in both reading and math over the Control group.

The gains indicate a higher achievement level for the Experimental group, but this achievement failed to meet the necessary level for significance (.05 level).

The results therefore supported the hypothesis that the Experimental group would receive higher scores on the California Achievement Test, but these scores were not shown to be statistically significant.

CONCLUSIONS

As indicated above, the Extended-Day Kindergarten children showed mean gains in both subject areas but statistical analysis also indicated that there was a lack of significance in the data.

When analyzing the individual scores of both samples, it could be seen that there was a large dispersement of scores to both ends of the scale.

IMPLICATIONS

This particular population should be studied at some time again. Perhaps within the sample there were children with special needs which should have been identified before they were tested. It is also possible that this particular population may need a longer period of time for instruction before being studied in order to make the significant gains noted in many of the related research studies on this subject.

The concept of Extended-Day Kindergarten is a progressive idea of today, one which offers both society and students new programs to stimulate young minds, note deficits in young children at an early age, provide a solution to needs for child care for the surge in the labor force, and enhance academic and creative abilities.

It is suggested that identification of students with special needs and deficits be carried out before initiating the testing procedures.

RELATED RESEARCH

Every educator has probably given some thought to early-childhood education at one time or another. It would seem that concerns for developing productive individuals should be the basis at which all levels of thinking concerning early education would commence. Noted authorities throughout history have indeed offered and developed ideas concerning the education of young children.

EARLY RESEARCH

Comenius, a theologian and educational reformer during the 17th century, was concerned with sense perception in learning and the unique needs of children at different age levels. He published a course of study in his School of Infancy in 1633. It contained simple lessons in object recognition, plant and animal recognition, distinguishing light, darkness, color and it also contained prayers. He also wrote the first picture book for children in 1658. Comenius was also the advocate of prenatal education for mothers.

Emile by Rousseau, was published in 1762. It gave impetus to the idea of beginning education early. Rousseau felt that education should begin at birth and continue until 25 years of age. He stressed the need for allowing natural development, rather than preparation for later life.

Pestalozzi was involved with the training of children in the home. He did much of his teaching by concrete

experiences.

Frederick Froebel established a school for young children in the early 1840's. Froebel was influenced by the earlier work of Pestalozzi. Froebel's program laid great emphasis on educational play materials.

The first Kindergarten in the United States was established by Mrs. Carl Shurz, in Watertown, Wisconsin in 1855. It was a German-speaking Kindergarten and was greatly influenced by the thinking of Froebel.'

The first English-speaking Kindergarten was privately operated by Elizabeth Peabody in Boston in 1860.

The first public school Kindergarten in the United States opened in St. Louis in 1873 under the establishment of Susan E. Blow & William T. Harris.

PROGRESSIVE MOVEMENT

During the 1880's and the decade following, the Kindergarten movement took upon many changes. During the first quarter of the 20th century, the Kindergarten program moved from Frobelian-inspired thinking and curriculum to one based upon objective elements of science as applied to education.

During this time the International Kindergarten Union was engaged in a battle. Leaders within the organization were labeled as conservative and progressives. The progressive Kindergarten leaders found a theoretical framework

which supported the philosophy of John Dewey, the child study of G. Stanley Hall and the learning theory of Thorndike. European leaders who belived in the same thinking were Binet, Freud, Montessori and Piaget. Dewey's writings influenced leaders such as Patty Smith Hill and Alice Temple. Patty Smith Hill believed that if children had directed liberty, habits of self-direction and social cooperation could be established.

In the 1930's Arnold Gessell's work had a powerful influence. Gessell, a pupil of J. Stanley Hall, directed research toward charting of behavior development and developing "norms of growth".

Hunt in his book Intelligence and Experience, probed Gessell's thinking about automatic unfolding. Hunt argued for the significance of environmental encounters and their influence on development. Because of the interest in early learning and development of cognitive skills, research concerning the subject began in the late 1950's and early 1960's. Publications during this period included Piaget's The Origin's of Intelligence in Children, Hunt's Intelligence and Experience, Bruner's The Process of Education and Bloom's Stability and Change in Human Characteristics.

PRESENT RESEARCH

In the 1960's many questions were asked and this resulted in a redefining of educational programs for the

young. Headstart programs were developed, which offered innovative programs for the young. These programs began so as to offer young children who had special deficits a better chance of overcoming them.

We have had Kindergarten education in the United States for about 100 years, but there still is a growing concern as to the type of services being rendered to young children in Kindergarten today. Educators, parents and supportive staff not only are questioning the quality of services, but also the quantity of time spent in the Kindergarten.

Changing society and economic conditions have also added to the concerns of parents and educators. Innovative programs and ideas which would provide a means of meeting student's individual needs and fostering cognitive development are being experimented with in many cities throughout the country.

The new idea is called Extended-Day Kindergarten. It is believed by educators that the extended sessions will allow for the individuality of students at this young age.

The National Educational Association recommends that an Extended-Day Kindergarten program be available for children because it provides:

1. Opportunities for a better, balanced and less hurried day for children.
2. Allows the staff to give more individual attention to the children, schedule frequent conferences with parents,

and plan with auxiliary staff members to provide more meaningful learning experiences.

3. Make available to children from all social economic backgrounds, services and learning that comes from lunch, rest and the instructional opportunities of an Extended-Day.
4. Recognized that the first year of school for a child should be the very best.
5. Increased time and opportunities to provide for first-hand experiences that lay the foundation for learning in all curriculum areas.
6. Provides time for a child to organize his/her experiences, test his/her ideas, and come up with some generalizations to be used in handling future situations.
7. Recognizes that Kindergarten teachers carry a dual responsibility of working with children and parents and must, therefore, have time and class loads that make an effective program possible.
8. Is supported by research in the area of early childhood education that indicated that by the age of six the child has developed as much as two-thirds of the intelligence he/she will have at maturity.

A study was done by Jack W. Humphrey using the Evansville-Vanderburgh School Corporation of Indiana. The purpose of the study was to present some findings relative to the benefits in an Extended-Day Kindergarten program as

compared to the traditional half-day kindergarten program. The school district implemented and conducted an Extended-Day Kindergarten pilot program during the second semester of the 1978/1979 school year. The program continued during the full 1979/1980 school year. Extended-Day Kindergarten children in four pilot schools (experimental group) and a random sampling of half-day kindergarten children (control group) from schools containing the half-day kindergarten session participated in the study. Each child from both groups was administered three evaluation instruments: the California Achievement Tests, the Boehm Test of Basic Concepts and the Gates-MacGinitie Reading Tests. Personal interviews, questionnaires and observations were used to collect additional information from teachers and parents.

It was hypothesized that children who attended an Extended-Day Kindergarten program would show greater growth in cognitive, psychomotor, affective and linguistic skills than those children who attended the half-day kindergarten program.

The results revealed that Extended-Day Kindergarten students scored significantly higher in the three tests used.

Ronald H. Nieman and Joseph F. Gastright presented a paper to the American Educational Research Association in which evidence regarding positive relationships between test scores and the amount of time students participate in pre-school and kindergarten classes were discussed. The

findings were based on four years of observations with five different standarized tests. The results show significant differences in I.Q., readiness and achievement at the end of pre-school, kindergarten, first and second grade.

Mueller reports evidence that at the end of grade three Extended-Day Kindergarten children had greater achievement than other students on a grade three test and the Kullman Anderson Verbal I.Q.

Marjorie Oelerich did an overview of pre-school and kindergarten children. She reported that basically children attend school all day throughout other countries. In Belgium 90% of the 3-5 year olds attended school from 8:30 to 4:15. In France children 2-5 attend school for 6 hours. It is estimated that 23% of all 2 year olds, 70% of all 3 year olds, 93% of all 4 year olds and 96% of all 5 year olds are enrolled in the programs. In Russia programs for young children are scheduled from 7:30 AM to 7:00 PM.

Lysiak and Evans compared 7 kindergarten curricula in relation to socioeconomic status. Extended-Day programs were favored for students who had a low socioeconomic status. Children in high socioeconomic status also measured higher on the Extended-Day programs using some materials.

The Minnesota State Department of Education compared half-day, everday with all/day alternate day kindergarten programs. Children who attended daily had significant higher scores on naming numbers one to nine and also higher knowledge

of letter sounds.

The Minnesota Association for Childhood Education believes that a quality Full Day Kindergarten Program must meet the following criteria:

1. The Full Day program should provide an opportunity to learn at an unhurried pace. It will also provide an opportunity for a more formally structured experience.
2. Time should be approximately 4 hours including lunch.
3. It must provide a balance of activities that require the use of large muscles and vigorous outdoor play, opportunities for dramatic play, quiet times and an opportunity to work with a variety of art media.
4. Must provide space and materials to stimulate a wide variety of learning experiences.
5. A quality program must provide for an individualized program.
6. Parent education should be an integral part.
7. Should provide continuity from day to day.

The Cincinnati, Ohio public schools also developed an Extended-Day Kindergarten program. The goals of the program are:

1. To strenghthen the child's perceptual and auditory skills.
2. Improve language development.
3. Make available dental and medical services.
4. To develop the potential of the family to motivate the learning of the child.

As a means of achieving some of the goals, the sessions for Kindergarten were extended. Field trips were scheduled once a week and parent involvement in a given month included 2 to 14 parents per classroom. As a means of evaluating the students' achievement the Peabody and the Boehm Test were used for vocabulary. The Metropolitan was used for reading. The results of the program showed that students attending Extended-Day Kindergarten sessions showed significant gains.

An eight-year follow-up study was done in Cincinnati by Ronald H. Nieman. He compared the scores of 410 former pre-school and Extended-Day Kindergarten Students with a group of traditional half-day kindergarten students. The results of the comparison indicated that at the end of both the 4th and 8th grades, the Extended-Day group scored significantly higher on both reading and math subtests of the Metropolitan Achievement Test. The Extended-Day group also had a lower incidence of grade failure.

The Kansas City Extended-Day Kindergarten plan provided for 690 five-year olds in 17 schools throughout the district. The program initiated in April 1970 and was based on "New Approaches to Readiness" a curriculum designed for inner city pupils by kindergarten teachers, reading and supervisory staff. The curriculum covers perceptual and oral language which includes listening and visual perception, visual motor coordination, number concepts, social learnings, science,

health and safety and physical education. The rationale of the program is that although some children require more time and direction, all children can learn concrete facts at an earlier age. The objective of the Extended-Day program, in compliance with the Title I evaluation office, is to raise the participant's achievement in reading readiness, communication and mathematics by at least 50 or 75 percent. Reported gains and the success of the Kansas City's program has been cited by the State Department of Elementary and Secondary Education in Jefferson City. The participating teachers agree that shy and withdrawn children especially profit from the extra time and gain strength and confidence through the program.

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APPENDIX

Percentile Achievement Scores of the Sample

Experimental		Control	
Reading	Math	Reading	Math
26	96	59	77
40	45	70	54
99	96	87	85
44	19	81	70
19	31	9	25
16	110	77	70
93	70	5	2
19	1	59	61
37	31	84	77
51	61	99	98
73	54	70	45
2	13	3	19
81	61	33	70
29	31	17	61
3	4	73	70
97	85	7	38
33	54	49	25
32	38	38	45
29	54	59	25
33	38	44	19
40	61	67	61
22	45	14	54
42	45	95	85
87	45	57	19
84	38	54	54
51	85	21	2
25	54	46	54
63	61	27	6
95	45	67	38
20	31	21	61
32	45	38	19
37	54	99	70
33	19	37	25
32	38	20	25
2	38	54	54
57	45	22	19
6	25	37	25
87	54	30	19
93	77	6	2
12	31	26	31
38	54	1	10
33	31	8	10
59	54	35	10
18	90	8	10
70	77	15	4
21	19	77	95
2	25	46	10
4	25	2	13
13	19	5	4

Experimental (cont.)		Control (cont.)	
Reading	Math	Reading	Math
81	70	29	25
81	54	9	2
46	45	21	25
67	31	40	13
95	61	38	45
73	61	26	19
42	54		
81	90		
46	54		
87	31		
93	85		
81	70		
15	31		
27	25		
84	95		
73	70		
57	38		
Total 66		Total 55	